

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Commenter	Commenter #	Disposition/Response to Comment
P1	AC 20-165B	general	0 general	AC 20-138	Both AC 20-138() and AC 20-138D are used at many places	Use AC 20-138() everywhere	Editorial	CMC		Use of AC 20-138D is used in specific instances where the most recent version of 20-138 would not be applicable
P2	AC 20-165B	All	Throughout	All section and paragraph headers	While the new method of numbering sections and paragraphs is more clear than the old, it makes it very difficult to reconcile references to older versions of this AC.	Suggest that the old numbering scheme be retained.	Conceptual	Garmin	1	AC revision written per by Order 1320.46D. It is hoped this is a one time effort comparing the old with later versions.
P3	AC 20-165B	1	1.1.1	“However, if you use the means described in this AC, you must follow it entirely.”	This statement is in conflict with FAA Order 1320.46D, <i>FAA Advisory Circular System</i> , Chapter 3 paragraph 9.c, which states: “c. ACs may set forth acceptable ways of complying with a particular regulation. However, do not imply that the AC represents the only acceptable way to comply. A person is free to follow the AC or to meet the regulatory requirement in a different way.”	Remove this statement. Additionally, to be consistent with FAA Order 1320.46D Chapter 3 paragraph 7.f, which states: “f. Use “must” to convey regulatory requirements. ... “Must” clearly conveys a requirement.” Every instance of the verb “must” within the entire draft AC should be examined to determine whether there is a clear regulatory requirement for the use of “must”. If a clear regulatory requirement cannot be found, the text should be revised to remove the implication that the guidance is based on a regulatory requirement.	Conceptual	Garmin	2	This comment addresses the advisory circular template. This comment has been passed on to the AC Template POC
P4	AC 20-165B	1	1.1.1	“However, if you use the means described in this AC, you must follow it entirely.”	This statement is in conflict with FAA Order 1320.46D, <i>FAA Advisory Circular System</i> , Chapter 3 paragraph 9.c, which states: “c. ACs may set forth acceptable ways of complying with a particular regulation. However, do not imply that the AC represents the only acceptable way to comply. A person is free to follow the AC or to meet the regulatory requirement in a different way.”	Remove this statement. Additionally, to be consistent with FAA Order 1320.46D Chapter 3 paragraph 7.f, which states: “f. Use “must” to convey regulatory requirements. ... “Must” clearly conveys a requirement.” Every instance of the verb “must” within the entire draft AC should be examined to determine whether there is a clear regulatory requirement for the use of “must”. If a clear regulatory requirement cannot be found, the text should be revised to remove the implication that the guidance is based on a regulatory requirement.	Conceptual	GAMA	2	This comment addresses the advisory circular template. This comment has been passed on to the AC Template POC
P5	AC 20-165B		1.1.2	“14 CFR 14 CFR 91.225 and 14 CFR 91.227”	Delete the first “14 CFR”.			R.H. Jacobson	31	Concur - Text changed
P6	AC 20-165B		1.1.2	“14 CFR 14 CFR 91.225 and 14 CFR 91.227”	Delete the first “14 CFR”.			Rockwell Collins	1	Concur - Text changed
P7		1	1.3	<i>This AC supersedes AC 20-165A, Airworthiness Approval of Automatic Dependent Surveillance - Broadcast (ADS-B) Out Systems. Equipment previously approved per the guidance in the superseded advisory circulars is still valid for the operations and conditions stated in their approvals.</i>	AIRBUS understand that equipment previously approved per AC 20-165A remain assessed as compliant with 14 CFR 91.225 and 14 CFR 91.227, and can be declared as compliant with AC 20-165B without any further substantiation.			AIRBUS	1	Agree. No change needed to AC text.
P8	AC 20-165B	1	1.3	“Equipment previously approved per the guidance in the superseded advisory circulars is still valid for the operations and conditions stated in their approvals.”	While the statement is clear that previous approvals remain valid, it is unclear whether a specific ADS-B Transmitter/Position Source approval using a superseded version of AC 20-165 remains valid for future installation approvals.	The exception should ensure that equipment previously approved in an installation per guidance in the superseded ACs is good for future installation approvals. i.e. a transponder/position source pairing approved using AC 20-165A should be allowed for installation approvals even after this AC is released.	Conceptual	Garmin	3	Agree with sentiment. No change to the text is required.
P9	AC 20-165B	1	1.3	“Equipment previously approved per the guidance in the superseded advisory circulars is still valid for the operations and conditions stated in their approvals.”	While the statement is clear that previous approvals remain valid, it is unclear whether a specific ADS-B Transmitter/Position Source approval using a superseded version of AC 20-165 remains valid for future installation approvals.	The exception should ensure that equipment previously approved in an installation per guidance in the superseded ACs is good for future installation approvals. i.e. a transponder/position source pairing approved using AC 20-165A should be allowed for installation approvals even after this AC is released.	Conceptual	GAMA	3	Agree with sentiment. No change to the text is required.
P10	AC 20-165B	5-Apr	2.2 and its subparagraphs	“Include ADS-B OUT operating limitations, normal operating procedures, and system description in the Airplane Flight Manual (AFM), Rotorcraft Flight Manual (RFM), AFM Supplement (AFMS), or RFM supplement (RFMS). The flight manual must also state that the installation meets the requirements of 14 CFR 91.227. ...”	FAA Order 1320.46D Chapter 3 paragraph 7.f, includes: “f. Use “must” to convey regulatory requirements. ... “Must” clearly conveys a requirement.” yet no regulatory requirement is cited for the statement that: “The flight manual must also state that the installation meets the requirements of 14 CFR 91.227.” Neither 91.225 nor 91.227 make any reference to requiring an AFM(S)/RFM(S) entry. It also would be inappropriate to cite a regulation such as 23.1583, “Operating Limitations”, and 23.1585, “Operating Procedures” since these regulations are intended for AFM(S) content for systems and equipment as it relates to the airworthiness of the aircraft and not the use of systems and equipment required to comply with operating regulations such as 91.225 and 91.227. Consequently, unless the FAA can provide a clear regulatory reference, an AFM(S)/RFM(S) modification should not be required as is implied by the use of the verb “must”. Furthermore, the AC 20-165A guidance regarding AFM(S) content is inconsistent with FAA AC 25.1581-1, Airplane Flight Manual, paragraph 4.a, which states: “a. Airplane Flight Manual (AFM). An FAA-approved document that contains information (operating limitations, operating procedures, performance information, etc.) necessary to operate the airplane at the level of safety established by the airplane’s certification basis.” (emphasis added; underline in original) And paragraph 5.c, which includes: “c. The AFM content should be limited to the smallest practicable amount of material that is appropriate for the intended operation of the airplane. In general, the systems descriptions and procedures provided in the AFM for most large transport airplanes (i.e., those used in air carrier operations for which separate operating manuals are provided) should be limited to that which is uniquely related to airplane safety or airworthiness. ...” (emphasis added; underline in original) Similarly, the AC 20-165A guidance regarding AFM(S) content is inconsistent with FAA AC 23-8C, Flight Test Guide for Certification of Part 23 Airplanes, Appendix 5, Guide for Preparing Airplane Flight Manual and Pilots’ Operating Handbook Supplements.	Suggest the following for 2.2 and its subparagraphs: · Change the title of paragraph 2.2 to “Recommended Pilot’s Guide Content”, · Remove all references to AFM(S)/RFM(S), and · Change all instances of the verb “must” to “should”	Conceptual	Garmin	4	This statement was coordinated with AFS-300 and AFS-400 to aid their inspectors and pilots. Garmin is correct that it is not for an airworthiness purpose, but a flight dispatch purpose. No change to text made

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Commenter	Commenter #	Disposition/Response to Comment
P11	AC 20-165B	5-Apr	2.2 and its subparagraphs	“Include ADS-B OUT operating limitations, normal operating procedures, and system description in the Airplane Flight Manual (AFM), Rotorcraft Flight Manual (RFM), AFM Supplement (AFMS), or RFM supplement (RFMS). The flight manual must also state that the installation meets the requirements of 14 CFR 91.227. ...”	FAA Order 1320.46D Chapter 3 paragraph 7.f, includes: “f. Use “must” to convey regulatory requirements. ... “Must” clearly conveys a requirement.” Neither 91.225 nor 91.227 make any reference to requiring an AFM(S)/RFM(S) entry. “The flight manual must also state that the installation meets the requirements of 14 CFR 91.227.” yet no regulatory requirement is cited for the statement that: Additionally, it would be inappropriate to cite a regulation such as 23.1583, “Operating Limitations”, and 23.1585, “Operating Procedures” since these regulations are intended for AFM(S) content for systems and equipment as it relates to the airworthiness of the aircraft and not the use of systems and equipment required to comply with operating regulations such as 91.225 and 91.227. Consequently, unless the FAA can provide a clear regulatory reference, an AFM(S)/RFM(S) modification should not be required as is implied by the use of the verb “must”.	Suggest the following for 2.2 and its subparagraphs: · Change the title of paragraph 2.2 to “Recommended Pilot’s Guide Content”, · Change all instances of the verb “must” to “should”	Conceptual	GAMA	4	This statement was coordinated with AFS-300 and AFS-400 to aid their inspectors and pilots. Garmin is correct that it is not for an airworthiness purpose, but a flight dispatch purpose. No change to text made
P12	AC 20-165B	5	2.2.2.4	“Describe how the ADS-B OUT system can be disabled, if there is an ability to disable the ADS-B system, and the means through which the pilot can detect that the system has been disabled.”	Clarify “ADS-B OUT” for the second instance of “ADS-B” in 2.2.2.4. Note: any additional “OUT”s are bolded and underlined in the Proposed Resolution column to make them stand out in the comment. It is not expected that this text in the AC would be bolded or underlined.	Change to: “Describe how the ADS-B OUT system can be disabled, if there is an ability to disable the ADS-B OUT system, and the means through which the pilot can detect that the system has been disabled.”	Editorial	Garmin	5	Concur - Text changed
P13	AC 20-165B	5	2.2.2.5	“Include guidance in the flight manual on when to enable the ADS-B system. The ADS-B system must be enabled (turned ON) during all phases of flight operation including airport surface movement operations. ADS-B IN surface applications and ATC surface surveillance will use ADS-B broadcasts; thus it is important for aircraft ADS-B OUT systems to continue to transmit on the airport surface. If the ADS-B function is embedded in a Mode S transponder, the flight manual, checklists, and any operator procedures manuals must be updated accordingly with ADS-B operations guidance. Note: Historically, transponders have been turned on by the flight crew when entering the runway for takeoff and turned off or to standby when exiting the runway after landing. When ADS-B is integrated into a Mode S transponder, the existing guidance for transponder operation must be updated to ensure the ADS-B is operating during airport surface movement operations.”	Clarify “ADS-B OUT” for the first, second, fourth, sixth, seventh, eighth, and ninth instances of “ADS-B” in 2.2.2.5. Note: any additional “OUT”s are bolded and underlined in the Proposed Resolution column to make them stand out in the comment. It is not expected that this text in the AC would be bolded or underlined.	Change to: “Include guidance in the flight manual on when to enable the ADS-B OUT system. The ADS-B OUT system must be enabled (turned ON) during all phases of flight operation including airport surface movement operations. ADS-B IN surface applications and ATC surface surveillance will use ADS-B OUT broadcasts; thus it is important for aircraft ADS-B OUT systems to continue to transmit on the airport surface. If the ADS-B OUT function is embedded in a Mode S transponder, the flight manual, checklists, and any operator procedures manuals must be updated accordingly with ADS-B OUT operations guidance. Note: Historically, transponders have been turned on by the flight crew when entering the runway for takeoff and turned off or to standby when exiting the runway after landing. When ADS-B OUT is integrated into a Mode S transponder, the existing guidance for transponder operation must be updated to ensure the ADS-B OUT is operating during airport surface movement operations.”	Editorial	Garmin	6	Text changed, "OUT" added
P14	AC 20-165B	5	2.3.2	“ ADS-B functionality in a transponder. ”	Clarify “ADS-B OUT” for the first (bolded) sentence in 2.3.2 Note: any additional “OUT”s are underlined in the Proposed Resolution column to make them stand out in the comment. It is not expected that this text in the AC would be underlined.	“ ADS-B <u>OUT</u> functionality in a transponder. ”	Editorial	Garmin	7	All ADS-B systems, those with OUT and those with OUT and IN must meet the requirements in 91.413, 215 and 217
P15	AC 20-165B	8	3.1.2	“SDA may be preset at installation for systems that do not utilize multiple position sources with different design assurance levels; otherwise the system must be capable of adjusting the SDA broadcast parameter to match the position source being employed at the time of transmission.”	The SDA may be preset for position sources with different design assurance levels as long as the preset design assurance level is lower than or equal to the SDAs of the different sources.	Suggest the following modification: “SDA may be preset at installation for systems if the value is less than or equal than the design assurance level of each component in the system; otherwise the system should be capable of adjusting the SDA broadcast parameter to match the position source being employed at the time of transmission.”	Conceptual	Garmin	8	Agree with comment. Text as written does not preclude setting SDA to the lowest level therefore no change.
P16	AC 20-165B	8	3.1.2	“SDA may be preset at installation for systems that do not utilize multiple position sources with different design assurance levels; otherwise the system must be capable of adjusting the SDA broadcast parameter to match the position source being employed at the time of transmission.”	The SDA may be preset for position sources with different design assurance levels as long as the preset design assurance level is lower than or equal to the SDAs of the different sources.	Suggest the following modification: “SDA may be preset at installation for systems if the value is less than or equal than the design assurance level of each component in the system; otherwise the system should be capable of adjusting the SDA broadcast parameter to match the position source being employed at the time of transmission.”	Conceptual	GAMA	6	Agree with comment. Text as written does not preclude setting SDA to the lowest level therefore no change.
P17	AC 20-165B	8	3.1.2.1	Installations with uncertified equipment must set SDA = 0 with the following exception: experimental category aircraft, including experimental light sport aircraft (E-LSA), may install unapproved equipment and set the SDA in accordance with the equipment manufacturer’s installation manual, provided the equipment has received a statement of compliance with the rule requirements from the equipment manufacturer(s).	Is the unapproved equipment discussed in Section 3.1.2.1 the position source equipment? Is the intent that the SDA value shall be provided in the position source manufacturer's installation manual? Or a value of SDA=0 will be used.	Provide clarity on the equipment being discussed in Section 3.1.2.1.		Bendix King-Honeywell	1	text changed to say installations of uncertified ADS-B systems
P18		14	3.1.2.1	<i>Installations with uncertified equipment must set SDA = 0 with the following exception: experimental category aircraft, including experimental light sport aircraft (E-LSA), may install unapproved equipment and set the SDA in accordance with the equipment manufacturer’s installation manual, provided the equipment has received a statement of compliance with the rule requirements from the equipment manufacturer(s).</i>	AIRBUS request the following clarification: - Does “experimental category aircraft” means “flight test aircraft” for example? - Could the FAA clarify the meaning of “a statement of compliance with the rule requirements from the equipment manufacturer(s)”? Which kind of evidence is acceptable?			AIRBUS	2	Text changed to clarify this section is primarily intended to allow low-cost equipage solutions for experimental amateur built aircraft, LSA and ELSA vehicles

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Commenter	Commenter #	Disposition/Response to Comment
P19	AC 20-165B	8	3.1.2.1	Installations with uncertified equipment must set SDA = 0 with the following exception: experimental category aircraft, including experimental light sport aircraft (E-LSA), may install unapproved equipment and set the SDA in accordance with the equipment manufacturer's installation manual, provided the equipment has received a statement of compliance with the rule requirements from the equipment manufacturer(s).	Is the unapproved equipment discussed in Section 3.1.2.1 the position source equipment? Is the intent that the SDA value shall be provided in the position source manufacturer's installation manual? Or a value of SDA=0 will be used.	Provide clarity on the equipment being discussed in Section 3.1.2.1.		GAMA	7	Text revised to clarify SDA
P20		15	3.1.2.2	<i>If the ADS-B system is integrated with a non-compliant GPS, the SDA must be set to 0 .</i>	AIRBUS would like the FAA to complement the above statement by cross-referencing the §3.1.2.1 for the definition of acceptable “compliant GPS”.	AIRBUS propose the following modification: “If the ADS-B system is integrated with a non-compliant GPS (i.e. a GPS not compliant with §3.1.2.1), the SDA must be set to 0.”		AIRBUS	3	Concur - Text changed
P21	AC 20-165B		3.1.3	Section 3.1.3 addresses position latency and 3.1.4 addresses the latency of the integrity, however Appendix C states that the latency must also include velocity and velocity accuracy. The text states, “TSO-C166b and TSO-C154c ADS-B equipment typically compensate for latency...”	When performing an initial review of this document, the additional latencies were missed.			Rockwell Collins	2	Agree. That said, if you do a position latency analysis this will be taken into account. No change to text required
P22	AC 20-165B		3.1.3	Section 3.1.3 addresses position latency and 3.1.4 addresses the latency of the integrity, however Appendix C states that the latency must also include velocity and velocity accuracy. These additional latency values should be included in the discussion in 3.1.3.	When performing an initial review of this document, the additional latencies were missed.			R.H. Jacobson	32	Agree. That said, if you do a position latency analysis this will be taken into account. No change to text required
P23	AC 20-165B		3.1.3	In reality, the ADS-B equipment is required to compensate for latency.	Change the text to state, “TSO-C166b and TSO-C154c ADS-B equipment are required to compensate for latency...”			Rockwell Collins	3	Text changed. "typically" removed
P24	AC 20-165B		3.1.3	The text states, “TSO-C166b and TSO-C154c ADS-B equipment typically compensate for latency...” In reality, the ADS-B equipment is required to compensate for latency.	Change the text to state, “TSO-C166b and TSO-C154c ADS-B equipment are required to compensate for latency...”			R.H. Jacobson	33	Text changed. "typically" removed
P25	AC 20-165B		3.1.5	The text states, “Changes in the SDA or SIL will typically only occur when a secondary position source is integrated into an ADS-B system and that secondary position source has a different SDA or SIL than the primary position source.” This statement is not factually correct. When all position sources are lost the SIL and SDA are required to go to 0.	Change the text to include a change required when the position source is lost. Something like... “Other than when all position information is lost, changes in the SDA and SIL ...”			R.H. Jacobson	34	Concur - Text changed
P26	AC 20-165B		3.1.5	The text states, “Changes in the SDA or SIL will typically only occur when a secondary position source is integrated into an ADS-B system and that secondary position source has a different SDA or SIL than the primary position source.” This statement is not factually correct. When all position sources are lost the SIL and SDA are required to go to 0.	Change the text to include a change required when the position source is lost. Something like... “Other than when all position information is lost, changes in the SDA and SIL ...”			Rockwell Collins	4	Concur - Text changed
P27	AC 20-165B		3.2.3.3	ADS-B In Capability section states that this parameter is intended to indicate if the aircraft has an ADS-B In system installed. Does this mean any ADS-B In system or does this mean a certified ADS-B In system?	Please clarify.			R.H. Jacobson	35	Text changed to say an ADS-B system must be capable of supporting at least one ADS-B IN application
P28	AC 20-165B		3.2.3.3	ADS-B In Capability section states that this parameter is intended to indicate if the aircraft has an ADS-B In system installed. Does this mean any ADS-B In system or does this mean a certified ADS-B In system?	Please clarify.			Rockwell Collins	5	Text changed to say an ADS-B system must be capable of supporting at least one ADS-B IN application
P29	AC 20-165B		3.2.3.4	Table 1 Emitter Category Value assignments do not correlate with RTCA/DO-260B MOPs definitions (although it is acknowledged that it does correlate to RTCA/DO-282()) and should be adjusted to do so. Table 1 should be updated to provide a “TYPE” column and an “Emitter Category Value” column with the values being assigned to be consistent with RTCA/DO-260B Table 2-14 and section 2.2.3.2.5.2.	The addition of the "value" column will lead to confusion when trying to interpret the table when compared to the definitions provided for Emitter Category in RTCA/DO-260B. For instance, Value 21_ "Line Obstacle" in the table above would be identified in RTCA/DO-260B as "TYPE" = 2 for Category Set "C" and then the "Emitter Category" = "5" as per RTCA/DO-260B section 2.2.3.2.5.2. Effectively, there is no way to correlate the value of "21" given above to the MOPs.			Rockwell Collins	6	Emitter table corrected to provide a description of each emitter category
P30	AC 20-165B		3.2.3.4	The emitter classes listed in Table 1 of the draft AC20-165B are not in-line with RTCA DO-260B. Here is an excerpt from DO-260B: The AC should be changed to be “in-line” with DO-260B, with the following modifications suggested by Jeff Tittsworth, the FAAs Wake Vortex Program Manager: Category 6, High vortex large should be eliminated (Jeff states that some aircraft such as the B737-900 have a larger wake than a B757, so the B757 shouldn't be treated differently anymore) Category 4 (or another “reserved” category) should be changed from “reserved” to “Super”. There is not a weight boundary for “Super”, it is a combination of gross weight, wingspan, and approach speed. Currently there are two aircraft in the “Super” category, the A388 and An225				Rocky Stone		Emitter table corrected to provide a description of each emitter category Changes to Emitter classifications are beyond the scope of this document. This comment has been passed on to RTCA SC-186 WG3 for consideration as a change to the Minimum Performance Standards.

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Commenter	Commenter #	Disposition/Response to Comment
P31	AC 20-165B		3.2.3.4	Table 1 Emitter Category Value assignments do not correlate with RTCA/DO-260B MOPs definitions (although it is acknowledged that it does correlate to RTCA/DO-282()) and should be adjusted to do so. Table 1 should be updated to provide a "TYPE" column and an "Emitter Category Value" column with the values being assigned to be consistent with RTCA/DO-260B Table 2-14 and section 2.2.3.2.5.2.	The addition of the "value" column will lead to confusion when trying to interpret the table when compared to the definitions provided for Emitter Category in RTCA/DO-260B. For instance, Value 21_"Line Obstacle" in the table above would be identified in RTCA/DO-260B as "TYPE" = 2 for Category Set "C" and then the "Emitter Category" = "5" as per RTCA/DO-260B section 2.2.3.2.5.2. Effectively, there is no way to correlate the value of "21" given above to the MOPs.			R.H. Saffell	1	Emitter table corrected to provide a description of each emitter category
P32	AC 20-165B	14	3.2.3.4	Table 1 Emitter Category	How is the value provided in Section 3.2.3.4 Table 1 to be used with the DO-260B Section 2.2.3.2.5.2, if at all? AC 20-165A did not define a value #.			Bendix King-Honeywell	2	Emitter table corrected to provide a description of each emitter category
P33	AC 20-165B	14	3.2.3.4	Table 1 Emitter Category	How is the value provided in Section 3.2.3.4 Table 1 to be used with the DO-260B Section 2.2.3.2.5.2, if at all? AC 20-165A did not define a value #.	Define a value	Conceptual	GAMA	8	Emitter table corrected to provide a description of each emitter category
P34		16	3.3.2.4	<i>If multiple position sources are interfaced to the ADS-B equipment, source selection can be accomplished manually by the pilot, automatically by the aircraft's navigation system, or by the ADS-B equipment.</i>	Could the FAA further clarify the meaning of "Multiple position sources"? Does this wording address sources from different technologies (such as MMR/GPS and IRS/INS/ADIRU) or several inputs from the same technology (such as GPS1 & GPS2), or both?			AIRBUS	4	Text changed to add examples. Multiple systems can be used as long as they are all the technologies compliant with Appendix 2.
P35	AC 20-165B	18	3.3.3.5	See Appendix B, section 4.f for additional information on HPL considerations.	There is no section 4.f in Appendix B. The section numbering in rev B has changed significantly. This is impractical for appendix B as the documentation of existing position sources was published using Rev A numbering.	Retain original numbering from Rev A Appendix 2 in Rev B appendix B.	Format	CMC		New AC format per FAA Order 1320.46D. Reference for "4.n" changed to section 4.5.6
P36	AC 20-165B		3.3.3.7.2	This section states, "A NACv = 2 (< 3 m/s) may be set dynamically from velocity accuracy output of a position source qualified in accordance..." This section looks very like the section above that allows the value to be strapped. At least two manufacturers missed the fact that a NACv of 2 was not a strappable setting.	Consider adding the word "only" just to make 3.3.3.7.1 and 3.3.3.7.2 look a little different: "A NACv = 2 (< 3 m/s) may only be set dynamically..."			Rockwell Collins	7	Text changed. May changed to must
P37	AC 20-165B		3.3.3.7.2	This section states, "A NACv = 2 (< 3 m/s) may be set dynamically from velocity accuracy output of a position source qualified in accordance..." This section looks very like the section above that allows the value to be strapped. At least two manufacturers missed the fact that a NACv of 2 was not a strappable setting.	Consider adding the word "only" just to make 3.3.3.7.1 and 3.3.3.7.2 look a little different: "A NACv = 2 (< 3 m/s) may only be set dynamically..." Delete this section. It is not relevant to this document.			R.H. Jacobson	36	Text changed. May changed to must
P38	AC 20-165B	19	3.3.3.8	"Ensure that the geometric altitude provided by the position source is based on Height-Above-Ellipsoid (HAE) instead of Height-Above-Geoid (HAG). Do not interface a position source that provides HAG or Mean Sea Level (MSL) altitude to the ADS-B equipment unless the ADS-B equipment has the ability to determine the difference between an HAG and HAE input, and that the ADS-B equipment has demonstrated during design approval that it can properly convert HAG to HAE using the same model as the position source."	The first sentence indicates that a position source providing HAG should not be interfaced with ADS-B, however the second sentence contradicts - it can be interfaced as long as the ADS-B equipment makes the proper conversion. The overall requirement should be that ADS-B transmits geometric altitude as HAE, regardless of the position source.	"Ensure that the geometric altitude provided by the position-source ADS-B Out Equipment is based on Height-Above-Ellipsoid (HAE) instead of Height-Above-Geoid (HAG). Do not interface a position source that provides HAG or Mean Sea Level (MSL) altitude to the ADS-B equipment unless..."	Conceptual	USAF HBAG		No change to text. This section explains that altitude reporting must be consistent between the interfaced ADS-B and GNSS position source.
P39	AC 20-165B		3.6.2.2	Section 3.6.2 is supposed to be installation guidance for TCAS II. Section 3.6.2.2 does not contain any installation guidance nor does it contain any information about ADS-B Out. This section does not fit in this AC.				R.H. Jacobson	37	Section 3.6.2.2, discussing TCAS II equipment is provided as guidance to our field offices that may have questions about integrating ADS-B with TCAS II systems.
P40	AC 20-165B		3.6.2.2	Section 3.6.2 is supposed to be installation guidance for TCAS II. Section 3.6.2.2 does not contain any installation guidance nor does it contain any information about ADS-B Out. This section does not fit in this AC.	Delete this section. It is not relevant to this document.			Rockwell Collins	8	Section 3.6.2.2, discussing TCAS II equipment is provided as guidance to our field offices that may have questions about integrating ADS-B with TCAS II systems.
P41	AC 20-165B		3.7.2.1	This section contains the sentence, "These failure conditions are advisory only and do not constitute a caution or warning condition." EASA's CS-ACNS states, "ADS-B device or function failures, should be indicated in amber or in accordance with the flight deck annunciation philosophy, without undue delay, i.e. a response time within the order of one second." Per section 4.1.5.3 of this document, amber is considered a caution. Using the guidance from the CS-ACNS, there are several existing installations using the amber color.	This discrepancy between agency guidance needs to be rectified.			Rockwell Collins	9	This AC guidance is accordance with Equip 2020 discussions and resolutions. It is acknowledged that this not harmonized with EASA.
P42	AC 20-165B		3.7.2.1	This section contains the sentence, "These failure conditions are advisory only and do not constitute a caution or warning condition." EASA's CS-ACNS states, "ADS-B device or function failures, should be indicated in amber or in accordance with the flight deck annunciation philosophy, without undue delay, i.e. a response time within the order of one second." Per section 4.1.5.3 of this document, amber is considered a caution. Using the guidance from the CS-ACNS, there are several existing installations using the amber color.	This discrepancy between agency guidance needs to be rectified.			R.H. Jacobson	38	This AC guidance is accordance with Equip 2020 discussions and resolutions. It is acknowledged that this not harmonized with EASA.

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Commenter	Commenter #	Disposition/Response to Comment
P43	AC 20-165B		3.7.2.1	This section contains the following sentence, “For legacy Mode C installations that are adding a UAT device, the following two failure annunciations are optional.” If these failure annunciations are acceptable to NOT be shown for a UAT installation, why is it that they must be shown for any other installation?	Either these annunciations are required and every installation must have them or they are not required for anyone. It is not clear why there are different rules for different classes of aircraft.			Rockwell Collins	10	This is a compromise made at the Equip 2020 forum for the lowest cost installations. For example 1960/70 vintage C152 with a NARCO Mode C transponder currently does not have any indication of transponder failure. Any STC or TC for these aircraft must include wiring for a lamp in the panel. The compromise is to allow the owner to decide whether to install the light or not. The owner/operator is responsible for complying with the rule and assumes the risk of noncompliance if they choose not to install failure alerting.
P44	AC 20-165B		3.7.2.1	This section contains the following sentence, “For legacy Mode C installations that are adding a UAT device, the following two failure annunciations are optional.” If these failure annunciations are acceptable to NOT be shown for a UAT installation, why is it that they must be shown for any other installation?	Either these annunciations are required and every installation must have them or they are not required for anyone. It is not clear why there are different rules for different classes of aircraft.			R.H. Jacobson	39	This is a compromise made at the Equip 2020 forum for the lowest cost installations. For example 1960/70 vintage C152 with a NARCO Mode C transponder currently does not have any indication of transponder failure. Any STC or TC for these aircraft must include wiring for a lamp in the panel. The compromise is to allow the owner to decide whether to install the light or not. The owner/operator is responsible for complying with the rule and assumes the risk of noncompliance if they choose not to install failure alerting.
P45	AC 20-165B	23	3.7.2.1	“The installation must have a method to display system operational status to the flight crew... The following two failure annunciations must be included in the initial airworthiness certification ...”	FAA Order 1320.46D Chapter 3 paragraph 7.f, includes: “f. Use “must” to convey regulatory requirements. ... “Must” clearly conveys a requirement.” yet no regulatory requirement is cited for the statements that: “The installation must have a method to display system operational status to the flight crew ... The following two failure annunciations must be included in the initial airworthiness certification ...” Neither 91.225 nor 91.227 make any reference to requiring a method to display system operational status or failure annunciations to the flight crew. For ADS-B OUT Systems, there is no identifiable pilot action required upon failure of the ADS-B OUT system. It is understood that certain advanced ADS-B IN applications may require flight crew knowledge of own-ship ADS-B OUT operational status. For those advanced ADS-B IN applications which require flight crew knowledge of own-ship ADS-B OUT operational status, AC 20-172() is the appropriate guidance material to contain that requirement.”	Change all instances of the verb “must” in this paragraph to “should”. Remove “For legacy Mode C installations that are adding a UAT device, the following two failure annunciations are optional.” as the two failure annunciations should be optional regardless of the ADS-B OUT link type.	Conceptual	Garmin	9	This guidance resulted from Equip 2020 discussions and the FAA has determined that this should not be relaxed further.
P46	AC 20-165B	23	3.7.2.1	“The installation must have a method to display system operational status to the flight crew... The following two failure annunciations must be included in the initial airworthiness certification ...”	FAA Order 1320.46D Chapter 3 paragraph 7.f, includes: “f. Use “must” to convey regulatory requirements. ... “Must” clearly conveys a requirement.” yet no regulatory requirement is cited for the statements that: “The installation must have a method to display system operational status to the flight crew ... The following two failure annunciations must be included in the initial airworthiness certification ...” Neither 91.225 nor 91.227 make any reference to requiring a method to display system operational status or failure annunciations to the flight crew. For ADS-B OUT Systems, there is no identifiable pilot action required upon failure of the ADS-B OUT system. It is understood that certain advanced ADS-B IN applications may require flight crew knowledge of own-ship ADS-B OUT operational status. For those advanced ADS-B IN applications which require flight crew knowledge of own-ship ADS-B OUT operational status, AC 20-172() is the appropriate guidance material to contain that requirement.”	Change all instances of the verb “must” in this paragraph to “should”. Remove “For legacy Mode C installations that are adding a UAT device, the following two failure annunciations are optional.” as the two failure annunciations should be optional regardless of the ADS-B OUT link type.	Conceptual	GAMA	9	This guidance resulted from Equip 2020 discussions and the FAA has determined that this should not be relaxed further.
P47	AC 20-165B		3.7.2.1.1	There is a “must” in section 3.7.2.1 and a “may” in section 3.7.2.1.1	Is this a requirement or an option? Is it a “must” or a “may”?			R.H. Jacobson	40	Text changed. "may" changed to "should"
P48	AC 20-165B		3.7.2.1.1	The term "may" was added in this document and therefore conflicts with line 7 and 8 of 3.7.2.1 which indicate that the device failure must be annunciated. Would appear that the "may" should be removed.	The word “may” should be deleted so as not to induce conflict in the requirements document.			Rockwell Collins	11	Text changed. "may" changed to "should"
P49	AC 20-165B	23	3.7.2.1.1	If the ADS-B equipment is unable to transmit ADS-B messages, the system may provide an appropriate annunciation to the flight crew.	Section 3.7.2.1 uses "must" and Section 3.7.2.1.1 uses "may" for the annunciation to the flight crew.	Recommend using the AC 20-165A 3-7b.(1)(a) wording for this section.		Bendix King-Honeywell	3	Text changed. "may" changed to "should"
P50	AC 20-165B		3.7.2.1.1	The term "may" was added in this document and therefore conflicts with line 7 and 8 of 3.7.2.1 which indicate that the device failure must be annunciated. Would appear that the "may" should be removed.	The word “may” should be deleted so as not to induce conflict in the requirements document.			R.H. Saffell	2	Text changed. "may" changed to "should"
P51	AC 20-165B	23	3.7.2.1.1	If the ADS-B equipment is unable to transmit ADS-B messages, the system may provide an appropriate annunciation to the flight crew.	Section 3.7.2.1 uses "must" and Section 3.7.2.1.1 uses "may" for the annunciation to the flight crew.	Recommend using the AC 20-165A 3-7b.(1)(a) wording for this section.	Conceptual	GAMA	10	Text changed. "may" changed to "should"
P52		25	3.7.3.1	When the aircraft system is fully powered on, the call sign/flight ID must be filled.	Could the FAA clarify the meaning of the sentence “When the aircraft system is fully powered on”? Is there any difference regarding the way the aircraft is powered on Battery, GPU, APU or Engine ON?			AIRBUS	5	Text changed. "fully" deleted. Sentence now reads: When the aircraft system is fully-powered on, the call sign/flight ID must be filled.
P53	AC 20-165B	25	3.7.3.5	"Aircraft equipped with a transponder and ADS-B system should provide the pilot a single point of entry into both systems..."	Wording should be updated to make it clear that a single point of entry is necessary for systems where the ADS-B Out system is separate from the transponder. If the ADS-B Out system is contained within the transponder, the system will have a single point of entry.	"Aircraft equipped with a transponder and separate ADS-B OUT system should provide the pilot a single point of entry into both systems..."	Editorial	USAF HBAG		Per comment, "separate" added. The word "OUT" was not added because the ADS-B system could be an ADS-B OUT or an ADS-B OUT and IN. Regardless of the OUT or OUT/IN capability, the ADS-B system should provide...
P54	AC 20-165B	26	3.7.3.5.2	“may not occur at a rate greater than 1x10 ⁵ per flight hour”	Typo “1x10 ⁵ ” should be “1x10 ⁻⁵ ”	Correct to “1x10 ⁻⁵ ”	Editorial	Garmin	10	Concur - Text changed

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Commenter	Commenter #	Disposition/Response to Comment
P55	AC 20-165B	29	Figure 3	“Antenna lateral offset” and “Antenna longitudinal offset” incorrectly labeled in figure.	The “Antenna lateral offset” and “Antenna longitudinal offset” label in the figure are swapped/backwards.	Change Figure 3 “Antenna lateral offset” text box to be “Antenna longitudinal offset” and “Antenna longitudinal offset” text box to be “Antenna lateral offset”	Editorial	Garmin	11	Concur - Text changed
P56	AC 20-165B		3.8.4.1, 3.8.4.3, Figure 3, A.2.9.2	“POA” was a parameter in DO-260A, but is not a parameter in DO-260B. Everything in the current MOPS refers to the offset being from the furthest point forward on the aircraft, not from some theoretical center point of an arbitrary box drawn around the aircraft. A value of 00001 (binary) in the longitudinal offset does refer to “Position Offset Applied by Sensor”, but not to “POA”. Additionally, there is no known position sensor that performs such a calculation. There is a lot of text added to this document that will cause more confusion than clarity as this is not a setting that should be used very often if ever.	It is recommended that all of the text added about “POA” is deleted as it is a setting that should not be used. At a minimum, add clarifying text that this guidance is only applicable if the position sensor does this calculation and that this guidance should not be used if any value other than 00001 is used in the longitudinal offset.			Rockwell Collins	12	Text changed. "...either a) the aircraft’s ADS-B position reference point, or b) the lateral distance from centerline and longitudinal distance from the most forward part of the aircraft."
P57	AC 20-165B		3.8.4.1, 3.8.4.3, Figure 3, A.2.9.2	“POA” was a parameter in DO-260A, but is not a parameter in DO-260B. Everything in the current MOPS refers to the offset being from the furthest point forward on the aircraft, not from some theoretical center point of an arbitrary box drawn around the aircraft. A value of 00001 (binary) in the longitudinal offset does refer to “Position Offset Applied by Sensor”, but not to “POA”. Additionally, there is no known position sensor that performs such a calculation. There is a lot of text added to this document that will cause more confusion than clarity as this is not a setting that should be used very often if ever.	It is recommended that all of the text added about “POA” is deleted as it is a setting that should not be used. At a minimum, add clarifying text that this guidance is only applicable if the position sensor does this calculation and that this guidance should not be used if any value other than 00001 is used in the longitudinal offset.			R.H. Jacobson	41	Text changed. "...either a) the aircraft’s ADS-B position reference point, or b) the lateral distance from centerline and longitudinal distance from the most forward part of the aircraft."
P58	AC 20-165B		3.8.4.3	Setting the POA seems to be contradictory to the setting of GPS Antenna Offset which indicates where the GPS antenna is located relative to the nose and longitudinal axis of the aircraft. A note is needed to indicate that if POA is set, then no further encoding of the GPS Antenna Offset is required as the location of the reference position is now the center of the length and width box.	We went through great lengths in DO-260B to simplify POA by adding GPS Antenna offset relative to the nose and longitudinal axis of the aircraft as suggested by multiple airlines. Now we seem to be complicating the issue again in this AC 20-165B.			R.H. Saffell	3	Text changed. "...either a) the aircraft’s ADS-B position reference point, or b) the lateral distance from centerline and longitudinal distance from the most forward part of the aircraft."
P59	AC 20-165B		3.8.4.3	Setting the POA seems to be contradictory to the setting of GPS Antenna Offset which indicates where the GPS antenna is located relative to the nose and longitudinal axis of the aircraft. A note is needed to indicate that if POA is set, then no further encoding of the GPS Antenna Offset is required as the location of the reference position is now the center of the length and width box.	Consider the point that if POA is set then the position reference is equal to ½ the length from the nose. If POA is not set, then the position reference is given by the GPS Antenna longitudinal offset.			R.H. Saffell	3	Text changed. "...either a) the aircraft’s ADS-B position reference point, or b) the lateral distance from centerline and longitudinal distance from the most forward part of the aircraft."
P60	AC 20-165B		3.8.4.3	Setting the POA seems to be contradictory to the setting of GPS Antenna Offset which indicates where the GPS antenna is located relative to the nose and longitudinal axis of the aircraft. A note is needed to indicate that if POA is set, then no further encoding of the GPS Antenna Offset is required as the location of the reference position is now the center of the length and width box.	We went through great lengths in DO-260B to simplify POA by adding GPS Antenna offset relative to the nose and longitudinal axis of the aircraft as suggested by multiple airlines. Now we seem to be complicating the issue again in this AC 20-165B. Consider the point that if POA is set then the position reference is equal to ½ the length from the nose. If POA is not set, then the position reference is given by the GPS Antenna longitudinal offset.			Rockwell Collins	13	Text changed. "...either a) the aircraft’s ADS-B position reference point, or b) the lateral distance from centerline and longitudinal distance from the most forward part of the aircraft."
P61	AC 20-165B	28	3.8.4.3	The POA setting of the GNSS antenna indicates if the broadcast position of the vehicle is referenced to the aircraft’s ADS-B position reference point or the actual location of the GNSS antenna.	DO-229() 2.1.2.6 Position Output (referenced by DO-229 sections 2.1.4.8 & 2.1.5.8) allows the position output to be either the antenna position or the center of navigation. Installers need to be informed that such an option exists.	Add reference to B.4.1. Add text in B.4.1 to discuss this issue and require GNSS manufacturers of TSO-C145/146 equipment that have a navigation center position output to document this function.	Conceptual	CMC		Text changed. Reference to B.4.1 added. Also, text changed to say "...either a) the aircraft’s ADS-B position reference point, or b) the lateral distance from centerline and longitudinal distance from the most forward part of the aircraft."
P62	AC 20-165B	28	3.8.4.3	"The POA setting of the GNSS antenna indicates if the broadcast position of the vehicle is referenced to the aircraft’s ADS-B position reference point or the actual location of the GNSS antenna."	Unclear what is meant by "actual location of the GNSS antenna"	Suggested sentence: "The POA setting of the GNSS antenna indicates if the broadcast position of the vehicle is referenced to either a) the aircraft’s ADS-B position reference point, or b) the lateral distance from centerline and longitudinal distance from the most forward part of the aircraft."	Conceptual	Airbus	1	Concur - Text changed
P63	AC 20-165B	Page: 29	Figure 3 (3.4.4.3)	Figure 3 - Position Offset:	- “Antenna lateral offset” as being the distance from the lateral axis of the aircraft to the GNSS antenna location. - “Antenna longitudinal offset” as being the distance from the longitudinal axis of the aircraft to the GNSS antenna location	- “Antenna lateral offset” as being the distance from the longitudinal axis of the aircraft to the GNSS antenna location. - “Antenna longitudinal offset” as being the distance from the lateral axis of the aircraft to the GNSS antenna location.		Boeing		Concur - Text changed
P64	AC 20-165B		3.9.2.1 through 3.9.2.3	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.			R.H. Saffell	4	Paragraph rewritten
P65	AC 20-165B		3.9.2.1 through 3.9.2.3	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.			Rockwell Collins	14	Paragraph rewritten

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Commenter	Commenter #	Disposition/Response to Comment
P66	AC 20-165B		3.11.2	This entire section is out of place as it is not a “Foreign Airspace Requirement”. Additionally, there is no applicable section for any of the other registers (why is there a section for 6,2 and not for 6,1, 6,5, 0,5, 0,6, 0,8, 0,9?). There is text in this section that has already been stated (e.g. SILsupp, NACp). There is text in this section that looks like it comes straight out of the MOPS and does not belong in the AC (e.g. Selected Heading text and Selected Altitude). There is guidance that is just plain wrong (the baro correction pressure setting should not be set to 0 if the aircraft is flying using pressure altitude; it should show standard pressure setting which is about 1013 hPa – this will be transmitted as “213” in the field called “Barometric Pressure Setting (Minus 800 millibars)”, not as 0 which is “unknown”)	It is believed that what is really the intent of this section is to add in the details about the “Status Mode Bits” “Autopilot Engaged”, “VNAV Mode Engaged”, “Altitude Hold Mode”, “Approach Mode”, and “LNAV Mode Engaged”. This guidance does not exist elsewhere. I personally would contend, this is not really installation guidance but that this is MOPS material, but adding another corrigendum to the MOPS would be of much greater scope at this time. These 6 sections should be moved to section 3.3.3 with some explanatory text put around it explaining that these fields should be set to 0 if there is any doubt as to what they should be set to.			Rockwell Collins	15	Section 3.11.2 removed.
P67	AC 20-165B		3.11.2 inclusive	This entire section provides an example as to how the mode bits may be set. A note should be added to clearly indicate that the entire section represents an example. Also, another note should be added to clearly state that the Mode status information needs to be clearly provided to the transponder by the autopilot, FCC, pilot entry or air data systems. A third note is needed to indicate that the Mode Status bits should be set to ZERO if information is not properly provided by the aircraft systems or pilot entry.	Setting of the Mode Status bits originated in the definition of BDS 4,0 over 15 years ago and has always let to confusion since no two aircraft provide the information in a consistent manner if such aircraft provide the information at all. RTCA/DO-260 re-introduced the Mode Status bits much to my personal disagreement as most of the installations set these bits to ZERO.			Rockwell Collins	16	Section 3.11.2 removed.
P68	AC 20-165B		3.11.2	This entire section is out of place as it is not a “Foreign Airspace Requirement”. Additionally, there is no applicable section for any of the other registers (why is there a section for 6,2 and not for 6,1, 6,5, 0,5, 0,6, 0,8, 0,9?).	It is believed that what is really the intent of this section is to add in the details about the “Status Mode Bits” “Autopilot Engaged”, “VNAV Mode Engaged”, “Altitude Hold Mode”, “Approach Mode”, and “LNAV Mode Engaged”. This guidance does not exist elsewhere. I personally would contend, this is not really installation guidance but that this is MOPS material, but adding another corrigendum to the MOPS would be of much greater scope at this time. These 6 sections should be moved to section 3.3.3 with some explanatory text put around it explaining that these fields should be set to 0 if there is any doubt as to what they should be set to.			R.H. Jacobson	42	Section 3.11.2 removed.
P69	AC 20-165B		3.11.2	There is text in this section that has already been stated (e.g. SILsupp, NACp). There is text in this section that looks like it comes straight out of the MOPS and does not belong in the AC (e.g. Selected Heading text and Selected Altitude). There is guidance that is just plain wrong (the baro correction pressure setting should not be set to 0 if the aircraft is flying using pressure altitude; it should show standard pressure setting which is about 1013 hPa – this will be transmitted as “213” in the field called “Barometric Pressure Setting (Minus 800 millibars)”, not as 0 which is “unknown”)	If not deleted altogether (as this guidance really needs to be put in the MOPS and not in the AC), it is believed that this entire section would fit better as an appendix. This section is not installation guidance but it is an example of how something within the system may be implemented.			R.H. Jacobson		Section 3.11.2 removed.
P70	AC 20-165B		3.11.2 inclusive	This entire section provides an example as to how the mode bits may be set. A note should be added to clearly indicate that the entire section represents an example. Also, another note should be added to clearly state that the Mode status information needs to be clearly provided to the transponder by the autopilot, FCC, pilot entry or air data systems. A third note is needed to indicate that the Mode Status bits should be set to ZERO if information is not properly provided by the aircraft systems or pilot entry.	Setting of the Mode Status bits originated in the definition of BDS 4,0 over 15 years ago and has always let to confusion since no two aircraft provide the information in a consistent manner if such aircraft provide the information at all. RTCA/DO-260 re-introduced the Mode Status bits much to my personal disagreement as most of the installations set these bits to ZERO.			R.H. Saffell	5	Section 3.11.2 removed.
P71	AC 20-165B		3.11.2		It is recommended to add the new Navigation System message elements from section 3.11.2 (e.g. Autopilot, VNAV, Altitude Hold, ADS-R Flag, etc.) to Appendix A. Furthermore it would be useful to extend Appendix A to a minimum ADS-B Surveillance Data Transmission List (with at least parameter name, description and BDS register) which are required for an ADS-B message.			Pilatus Aircraft Ltd		Section 3.11.2 removed.
P72	AC 20-165B	32	3.11.2	“This section describes how the Target State and Status bits, in Type Code 29 should be set if this information is provided by the ADS-B system.”	Target State and Status bits, in Type Code 29 are not mentioned in the 91.227(d), <i>Minimum Broadcast Message Element Set for ADS-B Out</i> . Consequently, it is unclear why this guidance was added to draft AC 20-165B. Additionally, the guidance is: <ul style="list-style-type: none">· Mostly redundant with the DO-260B MOPS,· In some cases goes beyond the DO-260B MOPS, and· Also goes beyond the guidance of EASA CS-ACNS. A specific example where the draft AC 20-165B guidance goes beyond the DO-260B MOPS is paragraph 3.11.2.9 which states, “If one or more of the mode parameters are provided, the installer should verify the MCP/FCU Mode bits are set in accordance with the horizontal/vertical mode controlling the aircraft.” DO-260B has no such requirement that the mode bits be set. Rather, just a requirement that the “Status of MCP/FCU Mode Bits” subfield reflect what data is populated in ME bits 48-52 of the Target State and Status Message. EASA CS-ACNS simply requires that Selected Altitude and Barometric Pressure Setting be populated in the Target State and Status message if the data is available in the transponder. Draft AC 20-165B goes beyond this requirement significantly with guidance for setting many other parameters.	Remove sections 3.11.2 and 3.11.3 in their entirety. If clarifications are required on “how the Target State and Status bits, in Type Code 29 should be set”, they should be made in the context of RTCA SC-186 as either a change to the TSO (e.g. TSO-C166C), change to DO-260B (e.g., Change 1), or a revision to DO-260B (e.g., DO-260C). This will ensure international harmonization between both industry and the certification authorities.	Conceptual	GAMA	11	Section 3.11.2 and 3.11.3 removed.

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Commenter	Commenter #	Disposition/Response to Comment
P73	AC 20-165B	32	3.11.2 and 3.11.3	“This section describes how the Target State and Status bits, in Type Code 29 should be set if this information is provided by the ADS-B system.”	Target State and Status bits, in Type Code 29 are not mentioned in the 91.227(d), Minimum Broadcast Message Element Set for ADS–B Out. Consequently, it is unclear why this guidance was added to draft AC 20-165B. Additionally, the guidance is: <ul style="list-style-type: none"> · Mostly redundant with the DO-260B MOPS, · In some cases goes beyond the DO-260B MOPS, and · Also goes beyond the guidance of EASA CS-ACNS. A specific example where the draft AC 20-165B guidance goes beyond the DO-260B MOPS is paragraph 3.11.2.9 which states, “If one or more of the mode parameters are provided, the installer should verify the MCP/FCU Mode bits are set in accordance with the horizontal/vertical mode controlling the aircraft.” DO-260B has no such requirement that the mode bits be set. Rather, just a requirement that the “Status of MCP/FCU Mode Bits” subfield reflect what data is populated in ME bits 48-52 of the Target State and Status Message. EASA CS-ACNS simply requires that Selected Altitude and Barometric Pressure Setting be populated in the Target State and Status message if the data is available in the transponder. Draft AC 20-165B goes beyond this requirement significantly with guidance for setting many other parameters. 	Remove sections 3.11.2 and 3.11.3 in their entirety. If clarifications are required on “how the Target State and Status bits, in Type Code 29 should be set”, they should be made in the context of RTCA SC-186 as either a change to the TSO (e.g. TSO-C166C), change to DO-260B (e.g., Change 1), or a revision to DO-260B (e.g., DO-260C). This will ensure international harmonization between both industry and the certification authorities.	Conceptual	Garmin	12	Section 3.11.2 and 3.11.3 removed.
P74		32	3.11.2		Could the FAA confirm that Register 6,2 is an optional parameter?			AIRBUS	6	Section 3.11.2 removed, out of scope of this document.
P75	AC 20-165B		3.11.2.1 through 3.11.2.2	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.			R.H. Saffell	6	Section 3.11.2 removed, out of scope of this document.
P76	AC 20-165B		3.11.2.1 thru 3.11.2.9.7	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	Editorial Comment			Rockwell Collins	17	Section 3.11.2 removed, out of scope of this document.
P77	AC 20-165B		3.11.2.3 through 3.11.2.9.7	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.			R.H. Saffell	7	Section 3.11.2 removed, out of scope of this document.
P78	AC 20-165B	33	3.11.2.4	“the installer should verify that”	Typo “verify” should be “verify”	Correct to “verify”	Editorial	Garmin	13	Section 3.11.2 removed, out of scope of this document.
P79	AC 20-165B		3.11.3	Again, this section looks out of place as it is not a “Foreign Airspace Requirement”.				R.H. Jacobson	43	Section 3.11.3 removed, out of scope of this document.
P80	AC 20-165B		3.11.3	Again, this section looks out of place as it is not a “Foreign Airspace Requirement”.	If not deleted altogether (as this guidance really needs to be put in the MOPS and not in the AC), it is believed that this entire section would fit better as an appendix. This section is not installation guidance but it is an example of how something within the system may be implemented.			Rockwell Collins	18	Section 3.11.3 removed, out of scope of this document.
P81	AC 20-165B	32	3.11.3	“This section describes how the Target State and Status bits, in Type Code 29 should be set if this information is provided by the ADS-B system.”	Target State and Status bits, in Type Code 29 are not mentioned in the 91.227(d), <i>Minimum Broadcast Message Element Set for ADS–B Out</i> . Consequently, it is unclear why this guidance was added to draft AC 20-165B. Additionally, the guidance is: <ul style="list-style-type: none"> · Mostly redundant with the DO-260B MOPS, · In some cases goes beyond the DO-260B MOPS, and · Also goes beyond the guidance of EASA CS-ACNS. A specific example where the draft AC 20-165B guidance goes beyond the DO-260B MOPS is paragraph 3.11.2.9 which states, “If one or more of the mode parameters are provided, the installer should verify the MCP/FCU Mode bits are set in accordance with the horizontal/vertical mode controlling the aircraft.” DO-260B has no such requirement that the mode bits be set. Rather, just a requirement that the “Status of MCP/FCU Mode Bits” subfield reflect what data is populated in ME bits 48-52 of the Target State and Status Message. EASA CS-ACNS simply requires that Selected Altitude and Barometric Pressure Setting be populated in the Target State and Status message if the data is available in the transponder. Draft AC 20-165B goes beyond this requirement significantly with guidance for setting many other parameters. 	Remove sections 3.11.2 and 3.11.3 in their entirety. If clarifications are required on “how the Target State and Status bits, in Type Code 29 should be set”, they should be made in the context of RTCA SC-186 as either a change to the TSO (e.g. TSO-C166C), change to DO-260B (e.g., Change 1), or a revision to DO-260B (e.g., DO-260C). This will ensure international harmonization between both industry and the certification authorities.	Conceptual	GAMA	11	Section 3.11.3 removed, out of scope of this document.
P82	AC 20-165B		4.1.3.2	This section states “Ensure all 14 CFR 91.227(d) parameters are properly populated and transmitted.” It should not be necessary to go to 14CFR to get the data necessary to test the aircraft.	List the parameters in this section from 14 CFR 91.227(d) in a simple bullet point list.			Rockwell Collins	19	Concur - Text changed
P83	AC 20-165B		4.1.3.2	This section states “Ensure all 14 CFR 91.227(d) parameters are properly populated and transmitted.” It should not be necessary to go to 14CFR to get the data necessary to test the aircraft.	List the parameters in this section from 14 CFR 91.227(d) in a simple bullet point list.			R.H. Jacobson	44	Concur - Text changed
P84	AC 20-165B		4.2	This section states “which established this compatibility”. This sentence seems to be a copy of text later in section 4.3 of this document that provides a little better context for what “this compatibility” is referencing.	It is believed that “this compatibility” is referencing the compatibility between the position source and the ADS-B equipment (and not between the ADS-B equipment and the ground stations, between the ADS-B equipment and the altitude or the heading sources, etc.). This needs to be made clear.			Rockwell Collins	20	Text changed to clarify "this capability" Last sentence in section 4.3 removed.
P85	AC 20-165B		4.2	This section states “which established this compatibility”. This sentence seems to be a copy of text later in section 4.3 of this document that provides a little better context for what “this compatibility” is referencing.	It is believed that “this compatibility” is referencing the compatibility between the position source and the ADS-B equipment (and not between the ADS-B equipment and the ground stations, between the ADS-B equipment and the altitude or the heading sources, etc.). This needs to be made clear.			R.H. Jacobson	45	Text changed to clarify "this capability" Last sentence in section 4.3 removed.
P86	AC 20-165B		4.3	This section states “which established this compatibility”.	Based on the context, it is believed that “this compatibility” is between the position source and the ADS-B equipment (and not between the ADS-B equipment and the ground stations, between the ADS-B equipment and the altitude or the heading sources, etc.). This needs to be made clear.			Rockwell Collins	21	Sentence in question removed
P87	AC 20-165B		4.3	This section states “which established this compatibility”.	Based on the context, it is believed that “this compatibility” is between the position source and the ADS-B equipment (and not between the ADS-B equipment and the ground stations, between the ADS-B equipment and the altitude or the heading sources, etc.). This needs to be made clear.			R.H. Jacobson	46	Sentence in question removed
P88	AC 20-165B		4.3.1.1.1	This section talks about getting a compliance report for a previously approved ADS-B system, but there is no description of what is the scope of the system. Someone reading this may think it is only dependent upon the position source and the ADS-B equipment.	Add a reference in this section to Section 4.5, which defines all of the pieces of the system that must be the same for the previously used flight test to be applicable.			R.H. Jacobson	47	Text added to better define a Previously Certified System.

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Commenter	Commenter #	Disposition/Response to Comment
P89	AC 20-165B		4.3.1.1.1	This section talks about getting a compliance report for a previously approved ADS-B system, but there is no description of what is the scope of the system. Someone reading this may think it is only dependent upon the position source and the ADS-B equipment.	Add a reference in this section to Section 4.5, which defines all of the pieces of the system that must be the same for the previously used flight test to be applicable.			Rockwell Collins	22	Text added to better define a Previously Certified System.
P90	AC 20-165B	47	4.3.2.1	http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/enroute/surveillance_broadcast/coverage/	Link results in a "Page Not Found" error.	Updated link to ADS-B coverage.	Editorial	USAF HBAG		Concur - Text changed
P91	AC 20-165B	47	4.3.2.1	"http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/enroute/surveillance_broadcast/coverage/"	URL resulted in an FAA "Page Not Found"	Fix URL	Editorial	Garmin	14	Broken link fixed. Text added better describing where ADS-B coverage has been deployed in the US
P92	AC 20-165B	50	4.3.3.1	Table 9 4th row: $\leq 1 \times 10^{-7}$	should be $\leq 1 \times 10^{-7}$	as per comment	Editorial	CMC		Concur - Text changed
P93	AC 20-165B	50	4.3.3.1 Table 9	"SIL ≥ 3 "	SIL is 2 bits and therefore cannot be greater than 3.	"SIL = 3"	Editorial	USAF HBAG		Concur - Text changed
P94	AC 20-165B		A.2.19	There is an exception to the transmittal of the Mode 3/A code. If the setting is "1000", it is required to NOT send the squawk code.	Add a sentence stating that 1000 is not to be broadcast.			R.H. Jacobson	48	Note added
P95	AC 20-165B		A.2.19	There is an exception to the transmittal of the Mode 3/A code. If the setting is "1000", it is required to NOT send the squawk code.	Add a sentence stating that 1000 is not to be broadcast.			Rockwell Collins	23	Note added
P96	AC 20-165B		A.2.22	There is no explanation of NIC Supp A, B, or C anywhere in this document.	It is recommended that section A.2.22 includes a subsection of NIC Supp bits and that Table 11 is modified to show the NIC Supp bits.			R.H. Jacobson	49	NIC sup bits added
P97	AC 20-165B		A.2.22	There is no explanation of NIC Supp A, B, or C anywhere in this document.	It is recommended that section A.2.22 includes a subsection of NIC Supp bits and that Table 11 is modified to show the NIC Supp bits.			Rockwell Collins	24	NIC sup bits added
P98	AC 20-165B	A6	A.2.27	"A minimum SIL value of 3..."	SIL is 2 bits and therefore cannot be greater than 3.	"A minimum SIL value of 3..."	Editorial	USAF HBAG		Concur - Text changed
P99	AC 20-165B	general	Appendix B	TSO-C145/146 Rev b/c	TSO-C145/146 Rev d must be referenced in the same manner as Rev b&c	TSO-C145/146 Rev b/c/d	Editorial	CMC		Concur - Text changed
P100	AC 20-165B	general	Appendix B	HPLSBAS	SBAS should be a subscript	as per comment	Editorial	CMC		Concur - Text changed
P101	AC 20-165B		B4.1.1 through B.4.1.7	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.			R.H. Saffell	8	Text changed to align with AC formatting
P102	AC 20-165B		B.4.2.1 through B.4.2.7	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.			R.H. Saffell	9	Text changed to align with AC formatting
P103	AC 20-165B	B5	B.4.2.5	DO-229 D 2.1.2.6.2	extra space between "DO-229" and "D".	delete the extra space	Editorial	CMC		Concur - Text changed
P104	AC 20-165B		B.4.4.1 through B.4.4.7	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.			R.H. Saffell	10	Text changed to align with AC formatting
P105	AC 20-165B		B.4.5.1 through B.4.5.7	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.			R.H. Saffell	11	Text changed to align with AC formatting
P106	AC 20-165B		B.4.5.3, (and others)	"HPLSBAS" should have "SBAS" as a subscript.	Fix all "HPLSBAS" to be "HPL _{SBAS} ".			R.H. Jacobson	50	Concur - Text changed
P107	AC 20-165B		B.4.5.3, (and others)	"HPLSBAS" should have "SBAS" as a subscript.	Fix all "HPLSBAS" to be "HPL _{SBAS} ".			Rockwell Collins	25	Concur - Text changed
P108	AC 20-165B		B.4.6.1 Through B.4.6.7	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.			R.H. Saffell	12	Text changed to align with AC formatting
P109	AC 20-165B		B.4.7.1.1 through B.4.7.1.3	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	Rest of the document uses bold text for the subparagraph "Title" portion. So this appendix should do the same.			R.H. Saffell	13	Text changed to align with AC formatting
P110	AC 20-165B		B.4.7.2.1 through B.4.7.2.4	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	Rest of the document uses bold text for the subparagraph "Title" portion. So this appendix should do the same.			R.H. Saffell	14	Text changed to align with AC formatting
P111	AC 20-165B	B11	B.4.7.2.2	NIC = 9	Intent is not to prohibit output of NIC > 9; current text ambiguous.	NIC ≥ 9	Editorial	CMC		Concur - Text changed
P112	AC 20-165B	B11	B.4.7.2.4	NIC = 9	Intent is not to prohibit output of NIC > 9; current text ambiguous.	NIC ≥ 9	Editorial	CMC		Concur - Text changed
P113	AC 20-165B		B.4.8.1 through B.4.8.7	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	Rest of the document uses bold text for the subparagraph "Title" portion. So this appendix should do the same.			R.H. Saffell	15	Text changed to align with AC formatting
P114	AC 20-165B		B.4.9.1 through B.4.9.7	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	Rest of the document uses bold text for the subparagraph "Title" portion. So this appendix should do the same.			R.H. Saffell	16	Text changed to align with AC formatting
P115	AC 20-165B		B.4.10.1 through B.4.10.7	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	Rest of the document uses bold text for the subparagraph "Title" portion. So this appendix should do the same.			R.H. Saffell	17	Text changed to align with AC formatting
P116	AC 20-165B		B.4.11.1 through B.4.11.7	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	Rest of the document uses bold text for the subparagraph "Title" portion. So this appendix should do the same.			R.H. Saffell	18	Text changed to align with AC formatting
P117	AC 20-165B	B15	B.4.11.5 B.4.11.6 B.4.11.7	section 4.n of this Appendix	There is no section 4.n in Appendix B. The section numbering in rev B has changed significantly. This is impractical for appendix B as the documentation of existing position sources was published using Rev A numbering.	Retain original numbering from Rev A Appendix 2 in Rev B appendix B.	Format	CMC		Reference changed to RTCA DO-138()
P118	AC 20-165B		B.4.12.1 through B.4.12.7	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	Rest of the document uses bold text for the subparagraph "Title" portion. So this appendix should do the same.			R.H. Saffell	19	Text changed to align with AC formatting
P119	AC 20-165B	B17	B.4.13	"The GNSS equipment must output a time of applicability."	As currently worded, the requirement to "output a time of applicability" appears to be duplicative and redundant with the recommendation in B.4.19 to "output a UTC time mark identifying time of applicability". We believe the intent of the B.4.13 requirement is that the sensor must compute and output the position/velocity/HFOM output data with a known and consistent time of applicability for those particular data items, rather than a requirement for the sensor to be providing some kind of time stamp as an output.	"The GNSS equipment must output position, velocity and HFOM with a consistent time of applicability."	Conceptual	USAF HBAG		Text correct as written. TSO-C129/129a does not contain a requirement for time of applicability similar to that found in DO-229D, section 2.1.2.6 and 2.1.2.6.2. This requires the manufacturer to define a test or analysis to determine latency between satellite measurements and position solution.

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Commenter	Commenter #	Disposition/Response to Comment
P120	AC 20-165B	B17	B.4.13.1	“...the time the equipment calculates a filtered (impulse response) position solution. The equipment must ... account for the impulse response of the position solution”	No definition is provided for the phrase “impulse response of the position solution”: does this imply an analysis based on knowledge of the receiver’s internal transfer function between satellite measurement input data and computed position output? There is no corresponding requirement in DO-229C section 2.1.2.6, which is cited as the basis of compliance with the B.4.13 requirement for TSO-C145()/146()/196() equipment.	Either delete the requirement to account for the impulse response, or provide additional explanation of what analysis is required either in this section or in section C.4.8 Latency Points of Measurement.	Conceptual	USAF HBAG		Examples added to describe impulse response. The intent is to account for system latency.
P121	AC 20-165B		B.4.13.1 through B.4.13.7	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	Rest of the document uses bold text for the subparagraph “Title” portion. So this appendix should do the same.			R.H. Saffell	20	Text changed to align with AC formatting
P122	AC 20-165B	B17	B.4.13.2	“...the time the equipment calculates a filtered (impulse response) position solution. The equipment must ... account for the impulse response of the position solution”	No definition is provided for the phrase “impulse response of the position solution”: does this imply an analysis based on knowledge of the receiver’s internal transfer function between satellite measurement input data and computed position output? There is no corresponding requirement in DO-229C section 2.1.2.6, which is cited as the basis of compliance with the B.4.13 requirement for TSO-C145()/146()/196() equipment.	Either delete the requirement to account for the impulse response, or provide additional explanation of what analysis is required either in this section or in section C.4.8 Latency Points of Measurement.	Conceptual	USAF HBAG		Examples added to describe impulse response. The intent is to account for system latency.
P123	AC 20-165B		B.4.14.1 through B.4.14.10	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	Rest of the document uses bold text for the subparagraph “Title” portion. So this appendix should do the same.			R.H. Saffell	21	Text changed to align with AC formatting
P124	AC 20-165B		B.4.15.1 through B.4.15.7	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	Rest of the document uses bold text for the subparagraph “Title” portion. So this appendix should do the same.			R.H. Saffell	22	Text changed to align with AC formatting
P125	AC 20-165B	B20-B21	B.4.16.1 B.4.16.2 B.4.16.3 B.4.16.4 B.4.16.5 B.4.16.6 B.4.16.7	section 4.g, of this Appendix	There is no section 4.g in Appendix B. The section numbering in rev B has changed significantly. This is impractical for appendix B as the documentation of existing position sources was published using Rev A numbering.	Retain original numbering from Rev A Appendix 2 in Rev B appendix B.	Format	CMC		Reference changed to B.4.7
P126	AC 20-165B		B.4.16.1 through B.4.16.7	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	Rest of the document uses bold text for the subparagraph “Title” portion. So this appendix should do the same.			R.H. Saffell	23	Text changed to align with AC formatting
P127	AC 20-165B		B.4.17.1 through B.4.17.7	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	Rest of the document uses bold text for the subparagraph “Title” portion. So this appendix should do the same.			R.H. Saffell	24	Text changed to align with AC formatting
P128	AC 20-165B		B.4.18.1 through B.4.18.7	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	Rest of the document uses bold text for the subparagraph “Title” portion. So this appendix should do the same.			R.H. Saffell	25	Text changed to align with AC formatting
P129	AC 20-165B		B.4.19.1 through B.4.19.7	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	Rest of the document uses bold text for the subparagraph “Title” portion. So this appendix should do the same.			R.H. Saffell	26	Text changed to align with AC formatting
P130	AC 20-165B		B.4.20.1 through B.4.20.7	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	Rest of the document uses bold text for the subparagraph “Title” portion. So this appendix should do the same.			R.H. Saffell	27	Text changed to align with AC formatting
P131	AC 20-165B		Throughout Section B	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	Editorial Comment.			Rockwell Collins	26	Text changed to align with AC formatting
P132	AC 20-165B		Sections C.2.1.1 through C.2.1.4 and C.4.8.12 through C.4.8.2	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	Editorial Comment.			Rockwell Collins	27	Text changed to align with AC formatting
P133	AC 20-165B		C.2.1.1 through C.2.1.4	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	Rest of the document uses bold text for the subparagraph “Title” portion. So this appendix should do the same.			R.H. Saffell	28	Text changed to align with AC formatting
P134	AC 20-165B		C.4.8.1 through C.4.8.2	First sentence of each of these subsections should have Bold Font text in order to maintain consistency with the rest of the document.	Rest of the document uses bold text for the subparagraph “Title” portion. So this appendix should do the same.			R.H. Saffell	29	Text changed to align with AC formatting
P135	AC 20-165B		C.5	This latency analysis example does not match the reality of how a unit will work for uncompensated latency. 1) There is a need to show that the compensation cannot be more than 200 ms ahead of the aircraft. Uncompensated latency must show both the fastest time through the system and the slowest time through the system. 2) There is no accounting for an initial extrapolation. If the ADS-B Equipment does not allot for at least some amount of time up front, it will consistently be behind the aircraft. 3) The ADS-B Equipment may not induce any more than 100 ms of delay, but the position sits in the register for 100 ms as well. This 100 ms of sitting in the register is outside of the 100 ms of delay the ADS-B Equipment is allowed to induce. Compensated latency was not defined in this entire section and is not defined in the note below the table. It is not well described what this is talking about as most of the compensation is done within the ADS-B Equipment. It is thought that this is intended to be compensation by the position source, but that is not described anywhere.	This example needs to be rethought. Every time I have been asked to provide an analysis and it does not match what is in this example, I have to explain why the AC is misleading.			R.H. Jacobson	51	All of these things are either covered in section 3.1.3 or in various Appendix C sections. The FAA considers the example correct

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Commenter	Commenter #	Disposition/Response to Comment
P136	AC 20-165B		C.5	This latency analysis example does not match the reality of how a unit will work for uncompensated latency. 1) There is a need to show that the compensation cannot be more than 200 ms ahead of the aircraft. Uncompensated latency must show both the fastest time through the system and the slowest time through the system. 2) There is no accounting for an initial extrapolation. If the ADS-B Equipment does not allot for at least some amount of time up front, it will consistently be behind the aircraft. 3) The ADS-B Equipment may not induce any more than 100 ms of delay, but the position sits in the register for 100 ms as well. This 100 ms of sitting in the register is outside of the 100 ms of delay the ADS-B Equipment is allowed to induce. Compensated latency was not defined in this entire section and is not defined in the note below the table. It is not well described what this is talking about as most of the compensation is done within the ADS-B Equipment. It is thought that this is intended to be compensation by the position source, but that is not described anywhere.	This example needs to be rethought. Every time I have been asked to provide an analysis and it does not match what is in this example, I have to explain why the AC is misleading.			Rockwell Collins	28	All of these things are either covered in section 3.1.3 or in various Appendix C sections. The FAA considers the example correct
P137	AC 20-165B		Table 17 (C-1)	There is a missing “ms” in the ADS-B Equipment section. This table switches from ms to sec; it would be best to keep the same units throughout.	Editorial comments.			R.H. Jacobson	52	Concur - Text changed
P138	AC 20-165B		Table 17	There is a missing “ms” in the ADS-B Equipment section. This table switches from ms to sec; it would be best to keep the same units throughout.	Editorial comments.			Rockwell Collins	29	Concur - Text changed
P139	AC 20-165B		Table 18 (D-1)	This table is a copy of table 10 (A-1) ; why is this included twice? Just have a reference.	It would be best if the AC had clickable links in the doc for references.			R.H. Jacobson	53	Table left in place for ease of reference
P140	AC 20-165B		Table 18	This table is a copy of table 10; why is this included twice? Just have a reference.	It would be best if the AC had clickable links in the doc for references.			Rockwell Collins	30	Table left in place for ease of reference
P141	AC 20-165B		Table 19 (D-2)	For consistency, this table should be in Appendix A and a reference is added in Appendix D to this table.	It would be best if the AC had clickable links in the doc for references.			R.H. Jacobson	54	NACv table added
P142	AC 20-165B		Table 19	For consistency, this table should be in Appendix A and a reference is added in Appendix D to this table.	It would be best if the AC had clickable links in the doc for references.			Rockwell Collins	31	Table left in place for ease of reference
P143	AC 20-165B		Table 20 (D-3)	This table is a copy of table 11; why is this included twice? Just have a reference.	It would be best if the AC had clickable links in the doc for references.			R.H. Jacobson	55	Table left in place for ease of reference
P144	AC 20-165B		Table 20	This table is a copy of table 11; why is this included twice? Just have a reference.	It would be best if the AC had clickable links in the doc for references.			Rockwell Collins	32	Table left in place for ease of reference
P145	AC 20-165B		Table 21 (D-4)	This table is a copy of table 12; why is this included twice? Just have a reference.	It would be best if the AC had clickable links in the doc for references.			R.H. Jacobson	56	Table left in place for ease of reference
P146	AC 20-165B		Table 21	This table is a copy of table 12; why is this included twice? Just have a reference.	It would be best if the AC had clickable links in the doc for references.			Rockwell Collins	33	Table left in place for ease of reference
P147	AC 20-165B		Table 22 (D-5)	This table is a copy of table 14; why is this included twice? Just have a reference.	It would be best if the AC had clickable links in the doc for references.			R.H. Jacobson	57	Table left in place for ease of reference
P148	AC 20-165B		Table 22	This table is a copy of table 14; why is this included twice? Just have a reference.	It would be best if the AC had clickable links in the doc for references.			Rockwell Collins	34	Table left in place for ease of reference
P149		D1	Appendix D, §1.1		The definition of MCP should be added			AIRBUS	7	Definition added
P150	AC 20-165B		D.1.1.18	(NACv) in the first sentence should have Bold Font text in order to maintain consistency with the rest of the document.	Rest of the document uses bold text for the subparagraph “Title” portion. So this appendix should do the same.			R.H. Saffell	30	Text changed to align with AC formatting
P151	AC 20-165B		D.1.1.18	(NACv) in the first sentence should have Bold Font text in order to maintain consistency with the rest of the document.	Rest of the document uses bold text for the subparagraph “Title” portion. So this appendix should do the same.			Rockwell Collins	35	Text changed to align with AC formatting
P152	AC 20-165B	D3	D.1.1.19	A NACp of 7 or greater is required per 14 CFR 91.227.	"NACp" should be "NIC".	Replace "NACp" with "NIC".	Editorial	CMC		Concur - Text changed
P153	AC 20-165B	D3	D.1.1.19	In section D.1.1.19 the last sentence states “A NACp of 7 or greater is required per 14 CFR 91.227	Should this section state “A NIC of 7 or greater is required per 14 CFR 91.227.	Should this section state “A NIC of 7 or greater is required per 14 CFR 91.227.	Conceptual	GAMA	12	Concur - Text changed
P154	AC 20-165B	D4	D.1.1.24	"A SIL of 3 or greater is required..."	SIL is 2 bits and therefore cannot be greater than 3.	"A SIL of 3 or greater is required..."	Editorial	USAF HBAG		Concur - Text changed
P155	AC 20-165B	D5	D.1.1.25 Table 22	Table 22 (table D-5)	Recommend matching Table 22 with Table 14 on page A7, which contains an expanded definition of SDA including failure condition and software/hardware design assurance level, which are both integral to the definition.	Match Table 22 with Table 14	Editorial	USAF HBAG		SDA definition provided here acceptable in context. Text added "Refer to A.2.29 for more information"
P156	AC 20-165B	Page: D3	D.1.1.19	Para: D.1.1.19 Navigation Integrity Category (NIC)	“... A NACp of 7 or greater is required per 14 CFR 91.227.”	“... A NACp NIC of 7 or greater is required per 14 CFR 91.227.” The statement is incorrect as stated in the proposed AC. NACp is mistakenly stated instead of NIC.		Boeing		Concur - Text changed
P157	AC 20-165B	Page: D4	D.1.1.24	Para: D.1.1.24 Source Integrity Level (SIL)	“... A SIL of 3 or greater is required per 14 CFR 91.227.”	“... A SIL of 3 or greater is required per 14 CFR 91.227.” Per Table 21, SIL Encoding, on page D5 of the proposed AC, and in accordance with 14 CFR §91.227, there is no allowable value greater than 3.		Boeing		Concur - Text changed
P158	AC 20-165B		D.1.2	The list of acronyms does not need a separate section header.	Adjust this list to be bullet points.			R.H. Jacobson	58	Text changed to align with AC formatting
P159	AC 20-165B		D.1.2	The list of acronyms does not need a separate section header.	Adjust this list to be bullet points.			Rockwell Collins	36	Text changed to align with AC formatting
P160	AC 20-165B	E2	E.1.3.11	Wide Area Augmentation System (WAAS)	Rev d of TSO uses "Satellite Based Augmentation System (SBAS)" in its title	as per comment	Editorial	CMC		Text changed to reflect current document name
P161	AC 20-165B	E2	E.1.3.12	Wide Area Augmentation System (WAAS)	Rev d of TSO uses "Satellite Based Augmentation System (SBAS)" in its title	as per comment	Editorial	CMC		Text changed to reflect current document name

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Commenter	Commenter #	Disposition/Response to Comment
P162	AC 20-165B	E3	E.2.1.4	Wide Area Augmentation System (WAAS)	Change 1 of DO-229D uses "Satellite-Based Augmentation System (SBAS)" in its title	as per comment and indicate Change 1 of the document	Editorial	CMC		Concur - Text changed
P163	AC 20-165B		E.2.1.7	DO-300 is listed as a reference.	It is thought that DO-300A should now be the reference.			Rockwell Collins	37	Concur - Text changed
P164	AC 20-165B		E.2.1.7	DO-300 is listed as a reference.	It is thought that DO-300A should now be the reference.			R.H. Jacobson	59	Concur - Text changed
P165		E4	Appendix E, §5.1.1		EASA CS-ACNS should also be referred to in this paragraph.			AIRBUS	8	Reference to ED 2013/031/R added
P166	AC 20-165B		E.5.1	AMC 20-24 is listed as a reference, but not CS-ACNS	At a minimum it is necessary to list CS-ACNS. What would really be nice was if a list of the differences between CS-ACNS and this AC were listed (similar to the list that is provided in CS-ACNS).			Rockwell Collins	38	Reference to ED 2013/031/R added
P167	AC 20-165B		E.5.1	AMC 20-24 is listed as a reference, but not CS-ACNS	At a minimum it is necessary to list CS-ACNS. What would really be nice was if a list of the differences between CS-ACNS and this AC were listed (similar to the list that is provided in CS-ACNS).			R.H. Jacobson	60	Concur - Text changed